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THE WARM DRY MAY TO SEPTEMBER OF 1959

by R.E. Booth

The present article has been prompted by the numerous enquiries which have reached the Meteorological Office concerning the unusually long spell of dry warm weather being experienced in England and Wales and more particularly in the southern part of England. The brilliant weather, with only brief breaks, lasted for over five months.

Mean temperature has been above the average in England and Wales every month this year from February to September, the only other year this century with a similar sequence of warm months being 1933, while sunshine has been above and rainfall below the average during the five months May to September. Although February was unusually dry with only 14 per cent. of average rainfall the present exceptional spell of dry weather began during the second week in May, following a rather wet March and April, and continued with but few breaks up to the end of September and beyond.

During most of the period May to September the weather over the British Isles was mainly anticyclonic. After the first week in May an anticyclone developed in the Baltic area but moved westward on the 13th and pressure was highest to the north and west of the country for the rest of the month. After a short break in the fine weather an anticyclone spread over the British Isles from the Azores on June 11 and it was a fortnight before another short break with westerlies occurred during the last few days of the month. During most of July the weather was dominated by a ridge which extended north-eastwards from the Azores although on occasions fronts affected the northern part of the country as the ridge moved temporarily southwards. Anticyclones were situated over the British Isles for most of August, except during the second week and September was anticyclonic throughout except for a short period of westerlies around the 21st. At the beginning of October an anticyclone was situated over Europe but by the end of the first week Atlantic fronts caused rain in the west of the British Isles and by the 10th a developing depression brought rain to the whole country.

The fine spell began during the second week of May when temperature reached 80°F. over a wide area in the Midlands and south of England. At Kew it exceeded 75°F. on 11 days during the month. By the 18th the London area and many places from Yorkshire to Kent had had more than 15 days without measurable rain. Edinburgh had one of its driest Mays since 1770, only 1859 and 1844 being drier.

There was a break in the dry weather early in June when severe thunderstorms occurred in many places, but the month was generally sunny and warm with afternoon temperatures frequently exceeding 80°F.

July had many days of almost unbroken sunshine, high day temperatures and warm nights. Most of England and Wales had only about half the average rainfall, but isolated areas had much more, a reflection of the thundery outbreaks in the predominantly fine weather. Temperature exceeded 80°F. on 15 days in July and on two of these it rose to 90°F. or above. This latter temperature was exceeded over a large area extending from Kew to Cleethorpes on the 5th, the warmest day of the year; 96°F. was reached in Lincolnshire. At many places along the south coast sunshine was 150 per cent. of the average for the month and at Kew it was the sunniest July since 1928.

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August too was warm, sunny and very dry apart from outbreaks of thundery rain which were exceptionally severe on the 10th. In England and Wales there have been only four warmer Augusts this century, those of 1955, 1947, 1933 and 1911 and three sunnier, 1947, 1933 and 1911. At Kew temperature did not fall below 60°F. on 13 nights and it rose above 80°F. on six days.

In England and Wales it was easily the driest September since 1870, and the only drier September in Scotland was 1894 although 1933 was as dry. In 100 years of records at Ross-on-Wye only September 1865 has had less rain than September 1959, while at Stonyhurst it was the driest September since 1848. Temperature exceeded 80°F. every day from 6th to 12th in some part of the country and most of the south coast resorts had their sunniest September since 1911 while at some it was the sunniest of the century.

The fine warm weather continued into October with temperature rising into the eighties during the first few days but rain from the Atlantic spread into Cornwall towards the end of the first week and over the whole country by the 10th.

Occasional rain on September 21st ended a period without measurable rain of about 30 days in parts of north-east England and of about 37 days in the southern part of the country; at Kew this was the longest drought since records began in 1871. A few stations in the Midlands and East Anglia had no measurable rain from August 14 until the end of September, a period of 48 days while Lowestoft and Finningley ended a period without measurable rain on October 10th lasting 57 days. The longest drought reliably recorded in the British Isles was during the late spring and early summer of 1893 when some places had no measurable rain for 60 days.

The table below gives for England and Wales for the three summer months June, July and August, lists in ranking order showing the ten warmest and driest summers since 1900 and the ten sunniest since comparable records became available in 1909.

Temperature °F.	Rainfall in.	Sunshine hr/day
63.0 1947	4.7 1949	7.97 1911
62.9 1911	4.8 1913	7.39 1959
62.5 1933	5.5 1921	7.29 1949
62.4 1959	5.6 1933	7.14 1933
62.1 1949	5.7 1940)	6.87 1940
62.0 1935	5.7 1955)	6.83 1918
61.8 1934)	5.8 1911)	6.79 1935
61.8 1955)	5.8 1937)	6.78 1934
61.6 1921	5.9 1947	6.72 1921
61.5 1950)	6.1 1959	6.70 1929
61.5 1901)		

It will be seen that although the summer of 1959 was second only to 1911 for sunshine since 1909, and although there were only three warmer summers this century, it came tenth in the list for dryness owing no doubt to severe local thunderstorms.

Five summers are common in each section of the table 1959, 1949, 1933, 1921 and 1911, but the selection of the "best" summer will depend on how much weight is given to a particular element, for example, whether abundant sunshine is considered more important than lack of rainfall. If a smaller area or particular place were considered the result might be different.

It may be noted that the above five exceptionally fine summers occurred at about 10 to 12 year intervals apart from the longer gap between 1933 and 1949. They were all followed by mild and rather wet winters with the exception of 1933 which was followed by a cold and very dry winter. The table below gives for England and Wales the departure from average temperature

in °F., and the percentage of average rainfall and sunshine for the winter months, December, January and February, following the earlier fine summers.

	Temperature	Rainfall	Sunshine
1911	+1.1 °F.	139%	85%
1921	+0.4	117	99
1933	-1.0	47	112
1949	+1.8	117	98

The outstanding feature of 1959, however, has been the unusual sequence of warm and sunny months starting in May and continuing up to the end of September. A ranking order for the period May to September similar to the one given above for the summer months showing the five warmest, driest and sunniest such five month period is given below.

Ranking order for five month period May-September

Temperature °F.		Rainfall in.		Sunshine hr/day	
61.1	1947	7.5	1959	7.42	1911
60.6	1911	8.9	1921	7.14	1959
60.4	1949	9.2	1940	6.74	1949
60.3	1959	9.3	1949	6.65	1940
60.2	1933	9.7	1911	6.64	1921

It is noteworthy that for the longer period, 1959 now heads the ranking list for rainfall, and, as in the summer ranking list, is second only to 1911 for sunshine and that there were only three warmer such 5 month periods. The driest and sunniest May-September period occurred during the same five years although the ranking order was different, and three of these years 1911, 1949 and 1959 were also among the warmest for the period.

The above ranking lists are based on observations taken from the beginning of the century, but estimates by various authorities make it possible to construct similar lists covering about 200 years for rainfall and temperature. General monthly rainfall values based on Meteorological Office station readings during the last hundred years were further extended back to 1729 by Nicholas, Freda and Glasspoole (British Rainfall 1931, page 299). The nearest approach to the rainfall in England and Wales of 7.5 in. during the five month period May to September was in 1750 for which the estimated value was 8.1 in. The following table gives a ranking list of low rainfall from May to September in England and Wales since 1729.

Year	in.	Year	in.
1959	7.5	1765	9.3
1750	8.1	1949	9.3
1870	8.6	1864	9.6
1921	8.9	1818	9.6
1743	9.0	1911	9.7
1940	9.2	1749	9.9

It will be noticed that of the twelve driest years during the last two hundred years listed above, four occurred before 1800 and five after 1900. Professor Gordon Manley has compiled from various sources a table of average monthly temperatures representative of the Midlands for every month back to 1723. For the period May to September, 1959 comes second only to 1947 in this table with 1868 very close and 1846 and 1933 following.

Similar ranking lists for Scotland show that the summer, June to August 1959 was the 4th warmest and the 23rd driest since 1900 and the 20th sunniest since 1909. The longer period May-September ranked as the second warmest,

equal to 1947, and the fourth driest equal to 1915 since 1900 and the 9th sunniest since 1909. The ranking list for the longer period is given below.

Temperature °F.		Rainfall in.		Sunshine hr./day	
56.9	1933	13.2	1955	6.07	1955
56.7	1959	13.7	1913	5.71	1911
56.7	1947	14.0	1933	5.60	1919
56.3	1901	14.1	1959	5.60	1940
56.2	1911	14.1	1915	5.47	1949
56.1	1949	14.9	1914	5.39	1915
56.0	1955	14.9	1939	5.28	1921
55.9	1945	15.0	1919	5.22	1935
55.9	1936			5.22	1959

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